

CLAIMS

1. A carbonaceous material for forming an electrically conductive composition, comprising a vapor grown carbon fiber,
5 each fiber filament of the carbon fiber containing a hollow space along the filament in its interior and having a multi-layer structure, an outer diameter of 2 to 500 nm and an aspect ratio of 10 to 15,000, and graphitic particles and/or
amorphous carbon particles, wherein the amount of the vapor
10 grown carbon fiber is 10 to 90 mass%, the amount of the graphitic particles is 0 to 65 mass%, and the amount of the amorphous carbon particles is 0 to 35 mass%.
2. The carbonaceous material for forming an electrically
15 conductive composition according to claim 1, wherein the vapor grown carbon fiber is the carbon fiber containing boron in an amount of 0.01 to 5 mass%, and the amount of the carbon fiber in the carbonaceous material is at least 20 mass%.
- 20 3. The carbonaceous material for forming an electrically conductive composition according to claim 1, wherein the vapor grown carbon fiber contains a branched, vapor grown carbon fiber.
- 25 4. The carbonaceous material for forming an electrically conductive composition according to claim 1, wherein the vapor grown carbon fiber contains a nodular, vapor grown carbon fiber.
- 30 5. The carbonaceous material for forming an electrically ~~conductive composition according to claim 1, wherein the~~
graphitic particles or the amorphous carbon particles have an average particle size of 0.1 to 100 μm .

6. The carbonaceous material for forming an electrically
conductive composition according to claim 1, wherein the
graphitic particles or the amorphous carbon particles have
5 been thermally treated at 2,000°C or higher.

7. The carbonaceous material for forming an electrically
conductive composition according to claim 1, wherein the
graphitic particles contain boron.

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8. The carbonaceous material for forming an electrically
conductive composition according to claim 1, wherein the
amorphous carbon particles contain boron.

15 9. The carbonaceous material for forming an electrically
conductive composition according to claim 1 or 8, wherein the
amorphous carbon particles are formed of carbon black or
glassy carbon.

20 10. The carbonaceous material for forming an electrically
conductive composition according to claim 9, wherein the
carbon black is at least one species selected from the group
consisting of oil furnace black, gas black, acetylene black,
lamp black, thermal black, channel black and Ketjenblack.

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11. The carbonaceous material for forming an electrically
conductive composition according to claim 1, comprising a
vapor grown carbon fiber, each fiber filament of the carbon
fiber containing a hollow space along the filament in its
30 interior and having a multi-layer structure, an outer
~~diameter of 2 to 500 nm and an aspect ratio of 10 to 15,000,~~
and graphitic particles, and at least one of the carbon fiber
and graphitic particles contains boron, wherein the amount of

the vapor grown carbon fiber is 35 to 93 mass% and the amount of the graphitic particles is 7 to 65 mass%.

12. The carbonaceous material for forming an electrically
5 conductive composition according to claim 1, comprising a
vapor grown carbon fiber, each fiber filament of the carbon
fiber containing a hollow space along the filament in its
interior and having a multi-layer structure, an outer
10 diameter of 2 to 500 nm and an aspect ratio of 10 to 15,000,
and amorphous carbon particles, and at least one of the
carbon fiber and amorphous carbon particles contains boron,
wherein the amount of the vapor grown carbon fiber is 65 to
93 mass% and the amount of the amorphous carbon particles is
7 to 35 mass%.

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13. The electrically conductive composition comprising an
carbonaceous material as recited in any of claims 1 to 12 and
a resin component serving as a binder or a matrix material,
and, if desired, a solvent.

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14. The electrically conductive composition according to
claim 13, wherein, when "a mass%", "b mass%" and "c mass%"
represent the amounts of the vapor grown carbon fiber, the
graphitic particles and the amorphous carbon particles
25 contained in the composition, with the proviso that the
solvent being excluded from the composition, respectively, a,
b and c satisfy the following relations:

$$5 \leq a + b + c \leq 80, 1 \leq a \leq 60, 1 \leq b \leq 60, \text{ and } 1 \leq c \leq 30.$$

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15. A method for producing an electrically conductive
composition characterized by adding a resin component and, if
desired, a solvent to the carbonaceous material for forming

an electrically conductive composition as recited in any of claims 1 to 12, and kneading the resultant mixture.

16. An electrically conductive coating material

5 characterized by comprising, as an electrically conductive material, an electrically conductive composition as recited in claim 13 or 14.

17. The electrically conductive coating material according
10 to claim 16, which is employed as an electrically conductive paste.

18. An electrically conductive adhesive characterized by
comprising an electrically conductive composition as recited
15 in claim 13 or 14.

19. An electrically conductive coating film characterized
by being formed by use of an electrically conductive coating
material as recited in 18 above.

20. An electronic part characterized by being formed by use
of an electrically conductive coating material as recited in
claim 16 and/or an electrically conductive adhesive as
recited in claim 18.